

Site-specific risk management plan template

**[template]**

## Purpose of this template

This template is intended to assist managers and operators of high risk public aquatic facilities and/or public aquatic facilities unable to meet elements of Queensland Health’s *Water quality guidelines for public aquatic facilities*, in developing a site-specific risk management plan. The template is focused on addressing hazards associated with water quality and public health risk. However, facility managers and operators may wish to use it to assess other risks relevant to the facility (e.g. drowning or slips and trips). Guidance on completion of the template is provided in italics at the start of each section. Also, examples are given of typical plan entries. When completing the template, these examples should be replaced by your own entries. The first two pages of this template should also be removed.

## Disclaimer

The content of this template and Queensland Health’s *Water quality guidelines for public aquatic facilities* should not be relied upon to identify, and risk assess, all water quality/public health related hazards associated with a public aquatic facility. Where managers and operators are unsure of the hazards relevant to their facility, or the risks they pose, they should seek appropriate advice.

## <*Aquatic facility name*> Site-specific Risk Management Plan

<*option to insert picture/logo here*>

|  |  |
| --- | --- |
| Facility address |  |
| Contact person |  |
| Position |  |

Revision history

|  |  |  |  |
| --- | --- | --- | --- |
| Revision | Name of person | Date | Initials |
|  |  |  |  |
|  |  |  |  |

## Section 1 – Risk management team

*A team of people should be assembled to develop the site-specific risk management plan. The team should be multidisciplinary by nature, involving a representative from management as well as staff involved in day to day operations of the public aquatic facility. External contractors may also be part of the team. The names, position titles, and skills/knowledge/experience of each team member should be documented in Table 1.*

Table 1 – Risk management team

|  |  |  |
| --- | --- | --- |
| Name | Position | Skills / knowledge / experience |
|  |  |  |
|  |  |  |

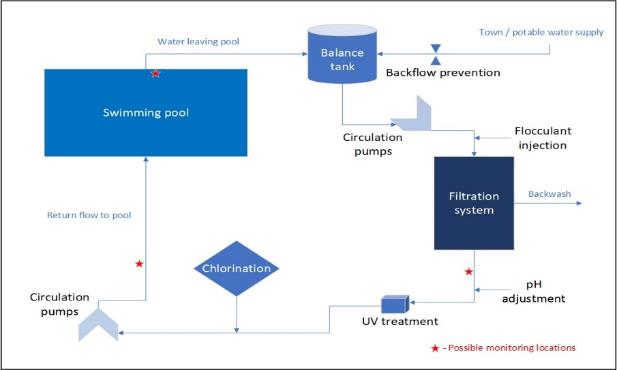
*Add more rows as required.*

## Section 2 – Process description

*Describe how the water flows through the public aquatic facility, including all the components associated with the flow such as, but not limited to, water source (usually the town water supply), filtration system, pH adjustment system, primary disinfection system (e.g. chlorination), secondary disinfection system (e.g. ozone, UV) and monitoring points located throughout the process.*

*Provide a basic schematic and/or flow diagram of the process. Be sure to include the water body or interactive water feature where bathers come into contact with the water. For interactive water features NOT located within a larger public aquatic facility, the process description should include identification of locations where passers-by may be exposed to spray mist.*

*Insert process flow diagram here. Figure 1 is shown as an example.*



*Figure 1. Example process flow diagram for a swimming pool*

## Section 3 – Hazard identification and risk assessment

*Table 2 can be used to document your hazards and hazardous events, to assess those risks and to identify appropriate control measures.*

### Section 3.1 – Hazard identification

*Use column 1 of Table 2 to list all the hazards/hazardous events associated with your facility. Some examples have been provided in the table. These should be replaced in your own risk table. Further information about the hazards/ hazardous events that may be relevant to your aquatic facility are discussed in Chapter 2 of the* *Water quality guidelines for public aquatic facilities.*

### Section 3.2 – Control measures

*For each of the hazards/hazardous events recorded in column 2 of Table 2, identify control measures currently employed to reduce the level of risk. Insert these controls into column 2 of Table 2. Note that monitoring, on its own, should not be considered a control measure.*

### Section 3.3 – Assess the current level of risk

*To assess the current level of risk for each hazard/hazardous event, go to Appendix 1, Table A to estimate the likelihood and Table B to estimate the consequence (or seriousness) of the hazards/ hazardous events. Then consult the risk matrix in Table C to determine the level of risk. Record your assessment of risk for each of your* *hazards/hazardous events in column 3 of Table 2.*

### Section 3.4 – Additional control measures

*Where the current risk is unacceptably high, use column 4 of Table 2 to document any additional control measures that should be implemented to reduce risk to an acceptable level (e.g. this could include non-treatment-based control measures such as closing the facility temporarily to allow for water quality to improve or reducing pool water turnover time).*

Table 2 – Hazard identification and risk assessment (showing examples)

|  |  |  |  |
| --- | --- | --- | --- |
| Hazard / Hazardous Event | Current control measures | Current risk | Additional control measures |
| *E.g. Chlorine-sensitive disease-causing microorganisms from faecal release* | * *Maintain effective minimum free chlorine concentration and pH at all times* * *Filtration* | *Low* | *Nil* |
| *E.g. Chlorine-resistant disease-causing microorganisms (Cryptosporidium and Giardia)* | * *Coagulation* * *Filtration* | *High* | *Secondary disinfection system (UV)* |
| *E.g. Chloramines* | * *Maintain minimum free chlorine concentration at all times* * *Weekly breakpoint chlorination* * *Encourage bathers to shower before entering the water* | *Low* | *Nil* |
| *E.g. Filter breakthrough* | * *Daily turbidity monitoring* | *High* | *Online turbidity monitor with alarm* |
| *E.g. Bather load excessive* | * *None* | *Moderate* | *Introduce bather limit* |

*Replace these examples with your own hazards/hazardous events, and add more rows as required.*

## Section 4 – Monitoring

*Use Tables 3 and 4 to record operational and verification monitoring activities. For each parameter that requires monitoring, you should identify the frequency of monitoring required, the locations where monitoring should be undertaken, the targets that should be met, the corrective actions that will be taken in response to a non-compliant monitoring result and how you will record the monitoring activity (e.g. daily/ weekly log sheets).*

*Appendix 2 of the Water quality guidelines for public aquatic facilities shows the recommended water quality criteria and monitoring frequencies for most situations. Where a facility is unable to comply with these criteria, this should be identified in this site-specific plan, which should also include a description of how the facility manager will ensure public health is protected using alternative performance criteria or control measures.*

### Section 4.1 – Operational monitoring

*Operational monitoring involves monitoring water quality to confirm the performance of treatment processes and control measures (e.g. free chlorine, pH, turbidity). It also includes physical variables like water temperature. It may be automated or undertaken manually. Use Table 3 to develop a schedule for operational monitoring.*

### Section 4.2 – Verification monitoring

*Verification monitoring involves sending water samples to a laboratory for analysis. Use Table 4 to develop a schedule for verification monitoring (e.g. E. coli, Pseudomonas aeruginosa, heterotrophic colony count).*

Table 3 – Operational monitoring (showing examples)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Frequency | Location | Target | Corrective action | Record keeping |
| *E.g. Free chlorine* | *Online* | *Pool outlets* | *Alert > 1.5 mg/L*  *Critical > 1 mg/L for 10 minutes* | *When free chlorine< 1.5 mg/L*  *Investigate cause of low free chlorine*  *Address cause of low free chlorine*  *When free chlorine < 1 mg/L*  *Close pool*  *Investigate cause of low free chlorine*  *Address cause of low free chlorine*  *Re-establish appropriate water quality* | *Electronic database* |
| *E.g. pH* | *Online* | *Pool outlets* | *7.2 – 7.8* | *Investigate cause of low pH / high pH*  *Address cause of low pH / high pH*  *Re-establish appropriate water quality* | *Electronic database* |

*Replace these examples with your own operational monitoring and add more rows as required*

Table 4 – Verification monitoring (showing examples)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Frequency | Location | Target | Corrective action | Record keeping |
| *E.g. E. coli* | *Quarterly* | *Verification monitoring point (location furthest from the inlets)* | *< 1 MPN / 100 mL* | *Close pool*  *Implement ‘Failure to meet microbiological parameters’ incident response procedure* | *Microbiological monitoring log* |
| *E.g. Pseudomonas aeruginosa* | *Quarterly* | *Verification monitoring point (location furthest from the inlets)* | *< 1 cfu / 100 mL* | *Close pool*  *Implement ‘Failure to meet microbiological parameters’ incident response procedure* | *Microbiological monitoring log* |

*Replace these examples with your own verification monitoring and add more rows as required*

## Section 5 – Incident response

*With reference to Appendix 6 of the Water Quality Guidelines for Public Aquatic Facilities, list the procedures developed to respond to diarrhoeal and formed stool/vomit incidents. The actual procedures can be an appendix to this plan.*

## Section 6 – Operator skills and training

*As noted in Chapter 10 of the Water quality guidelines for public aquatic facilities, all staff involved in operating a public aquatic facility should undertake training appropriate to their role. This plan should include a training schedule showing staff skills and competencies including dates for refresher training, including both formal (accreditation- based) and informal training opportunities (e.g. workshop and conference attendance).*

## Section 7 – Audit and review

*Provide a schedule for review of the plan. A plan review should take place at lease annually. Note that in addition to routine reviews you should consider reviewing your plan whenever there are significant changes to the operation of your facility, your control measures, or in the event of a significant public health risk event (e.g. suspected outbreak of illness).*

## Appendix 1. Likelihood and consequence descriptors

Table A – Qualitative measures of likelihood

|  |  |
| --- | --- |
| Descriptor | Description |
| Almost certain | Is expected to occur daily to weekly (from 52 to 365 times per year) |
| Likely | May occur weekly (13-52 times per year) |
| Possible | May occur monthly (2-12 times per year) |
| Unlikely | Expected to occur annually (1 per year) |
| Rare | May occur less than annually |

Table B – Qualitative measures of consequence

|  |  |
| --- | --- |
| Descriptor | Description |
| Catastrophic | Acute health impact e.g. significant disease linked to the facility |
| Major | Probable health impact e.g. diarrhoeal incident or pathogens detected, or facility impacted |
| Moderate | Potential acute health impact e.g. faecal incident or repeated water quality exceedance |
| Minor | Minor health related issue e.g. skin/eye irritation or isolated water quality issue |
| Insignificant | Isolated aesthetic issue |

Table C – Qualitative risk assessment matrix

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Consequence | | | | |
| Likelihood | Insignificant | Minor | Moderate | Major | Catastrophic |
| Almost certain | Moderate | High | High | Very high | Very high |
| Likely | Moderate | Moderate | High | High | Very high |
| Possible | Low | Moderate | Moderate | High | High |
| Unlikely | Low | Low | Moderate | Moderate | High |
| Rare | Low | Low | Low | Moderate | Moderate |